High School Algebra 1 Math Curriculum

Our goal is to equip students with the essential algebra skills needed for future success in higher-level math courses like Geometry and Algebra 2. We also want students to develop the confidence to think critically, solve problems, and explore real-world applications of math.

Algebra 1 is a foundational high school course that introduces students to variables, equations, functions, graphing, polynomials, and quadratics. It builds directly on the skills developed in middle school math, particularly with operations on integers, fractions, decimals, ratios, and basic geometry. The information below outlines the path your student will follow to master Algebra 1 and prepare for the next level of high school math.

What Math Should a Student Already Know?

Before starting Algebra 1, students should have a solid foundation in key middle school math skills. They should be comfortable with all four operations involving whole numbers, fractions, and decimals, as well as solving word problems involving ratios, rates, proportions, and percentages. Students should also have problem-solving skills, including the ability to translate word problems into mathematical expressions and apply logical reasoning. Take Assessment.

What Will Students Learn in Algebra 1?

The major math concepts covered in this Algebra 1 curriculum are:

- Number Sense
- Pre-Algebra: Operations on Integers
- Pre-Algebra: Variables & Expressions
- Multi-Step Equations
- Rational Numbers
- Inequalities & Absolute Value
- Graphing Equations & Inequalities
- Coordinate Systems
- Domain & Range of Functions
- Linear Equations: Slope & Intercept
- Linear Systems of Equations
- Polynomials & Factoring
- Quadratic Equations
- Real-world Applications & Projects

A YEAR AT A GLANCE Be sure to include a bit of wiggle room in case your student needs extra time with a math topic. The sequence below is our recommendation for a full year course:

STUDY SCHEDULE: FULL ALGEBRA 1 COURSE

This is the schedule that covers a full year of Algebra 1 (with pre-Algebra).

September	**October**	**November**	**December**
Algebra #1 (*Pre-Algebra)* *Operations on Integers*	Algebra #1 *(Pre-Algebra) Variables, Terms & Expressions*	Algebra #2 *Multi-Step Equations*	Two weeks of extra practice if needed.
January	**February**	**March**	**April**
Algebra #3 *Rational Numbers & Inequalities*	Algebra #4 *Graphing*	Algebra #5 *Systems of Linear Equations*	Algebra #6 *Polynomials*
May	**June**	**July**	**August**
Algebra #7: *Quadratics*	Math Camp	Advanced Labs #1-4	Advanced Labs #5-7

Algebra 1: Math Lesson Plan – 32 Weeks

Fall Term (Sept - Dec)

- Week 1: Prime Factorization
- Week 2: Number Line, Positive & Negative Numbers
- Week 3: Operations on Integers
- Week 4: Exponents
- Week 5: Equivalent Expressions
- Week 6: Like & Unlike Terms
- Week 7: Order of Operations
- Week 8: Solving One-Step Equations
- Week 9: Solving Two-Step Equations
- Week 10: Solving Two-Step Equations
- Week 11: Word Problems

***Algebra Build Challenges!**

In addition to math lessons with teachers and working on homework assignments, students also explore how algebra is used in the science and engineering fields by designing and building several Algebra Challenge Projects!

Your child will need materials to participate in all the hands-on fun! Click for materials list.

Winter Term (Jan - Feb)

- Week 12: Rational Numbers & Number Lines
- Week 13: Inequalities & Absolute Value
- Week 14: Solving Inequalities with Absolute Value
- Week 15: Relations & Functions & Review
- Week 16: Graphing Cartesian Coordinate Points
- Week 17: Slope of a Line
- Week 18: Proportional Relationships
- Week 19: Non-Proportional Relationships
- Week 20: Graphing Equations Review

Spring Term (March - May)

- Week 21: Graphing & Elimination
- Week 22: Substitution Method
- Week 23: Solving Systems of Inequalities, Slope-Intercept Review, & Word Problems
- Week 24: Proportional & Non-Proportional Relationships, Direct Variation
- Week 25: Introducing Polynomials
- Week 26: Factoring Polynomials
- Week 27: Difference of Squares, Sum of Cubes, Trinomials, Four Terms, & Mixed Factoring
- Week 28: Adding & Subtracting Polynomials; Common Denominators
- Week 29: Least Common Denominators; Square Roots & Radicals
- Week 30: Quadratics Formula
- Week 31: Graphing Quadratic Equations & Word Problems
- Week 32: Algebra 1 Review